

# UNCLASSIFIED

FY 2001 RDT&E,N BUDGET ITEM JUSTIFICATION SHEET

DATE: February 2000

BUDGET ACTIVITY: 2

PROGRAM ELEMENT: 0602131M

PROGRAM ELEMENT TITLE: Marine Corps Landing Force Technology

(U) COST: (Dollars in Thousands)

PROJECT NUMBER & TITLE	FY 1999 ESTIMATE	FY 2000 ESTIMATE	FY 2001 ESTIMATE	FY 2002 ESTIMATE	FY 2003 ESTIMATE	FY 2004 ESTIMATE	FY 2005 ESTIMATE	TO COMPLETE	TOTAL PROGRAM
Marine Corps Landing Force Technology	12,690	17,437	9,793	11,539	11,499	11,661	11,937	CONT.	CONT.

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: The basic roles and missions of the Marine Corps (the seizure and defense of advanced naval bases, the conduct of land operations essential to the naval campaign, and other such duties as the President may direct) are specified in Title 10 USC 5063. The National Security Act of 1947 and DoD Directive 5000.1 are the basis for conducting this Marine Corps effort.

(U) By law, the Marine Corps is tasked to develop, in conjunction with the Navy, Army, and Air Force, those phases of amphibious operations that pertain to tactics, techniques, and equipment used by the landing force. This program element (PE) is executed under project MQ1A. It is organized into five Warfighting Imperatives by the Future Naval Capabilities process. These Warfighting Imperatives are: Maneuver, Firepower, Command and Control, Logistics, and Training and Education.

(U) The primary objective of this PE is to develop and demonstrate the technologies needed to meet the Marine Corps unique responsibility for amphibious warfare and subsequent operations ashore. This PE provides the knowledge base to support Advanced Technology (6.3) and is the technology base for future amphibious/expeditionary warfare capabilities. This PE supports the Concept Based Requirements System of the Marine Corps Combat Development Center and responds directly to the United States Marine Corp (USMC) Science and Technology process.

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(U) JUSTIFICATION FOR BUDGET ACTIVITY: This program is budgeted within the Applied Research Budget Activity because it investigates technological advances with possible application toward the solution of specific Marine Corps problems, short of a major development effort.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1999 ACCOMPLISHMENTS:

- (U) Maneuver Imperative: Continued risk reduction for the Reconnaissance Surveillance Targeting Vehicle (RST-V) platform and payload integration. Completed integration of survivability technology with RST-V. Fabricated, integrated and tested tunable filter multi-spectral camera upgrade for Coastal Battlefield Reconnaissance and Analysis (COBRA) enhanced detection capability. Completed mine detection processing software development. Initiated investigation leading to the technology to enhance mobility of tactical systems. Completed market survey of commercial craft and propulsion components to satisfy the Small Unit Riverine Craft. Conducted detailed analysis and modeling of notional solutions to support Mine Countermeasure systems that can be applied to Marine Corps Ground Combat vehicles to support on-the-move, in-stride mine countermeasures. Prepared acquisition plan and supporting documents for commencement of developmental program to test hardware in FY00/01. Conducted joint planning with US Army to leverage existing or non-developmental items for USMC needs.
- (U) Firepower Imperative: Continued sensor integration technology efforts. Demonstrated advanced Enhanced Target Acquisition and Location technology and transitioned to Advanced Technology Demonstration (ATD).
- (U) Command and Control Imperative: Supported USMC requirements for Joint Networked Radios by prototyping modules and capabilities that the USMC will insert into the requirements of the Joint Program Office. Demonstrated communication technologies that were of high relevance to evolving USMC warfighting objectives for possible insertion into joint communication requirements. Demonstrated capability to jam cellular and other Personal Communications Systems devices that are utilized for military purposes. Demonstrated technology capability for further miniaturization of expendable jammers. Completed test target management capability for Advanced Field Artillery Tactical Data System and Contingency Theater Automated Planning System and evaluated the requirement for

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resolving targeting conflicts i.e. Naval surface fires in a USMC target management system. Assessed the requirement and benefits of converting software development to evolving Windows New Technology interface capabilities being made available by Marine Corps Tactical System Support Activity and Defense Information Systems Agency.

- (U) Logistics Imperative: Continued system development of Logistics Information Systems, focusing on decision support tools and data warehousing. Continued corrosion and materials research and testing with insertion of technologies in Light Armored Vehicle/Medium Tactical Vehicle Replacement/Logistics Vehicle System (LAV/MTVR/LVS). Continued to develop bulk liquids technologies in support of future sea basing concept development, focusing on innovation in packaging and distribution, as well as sensor ties to the information system. Conducted concept exploration in precision logistics, improved vehicle supportability over the full life cycle, and integrated diagnostics.
- (U) Training and Education Imperative: Continued Rapid Virtual Data Base development. Continued development of intelligent automated forces and tested by means of operational simulations. Continued training technology concepts development. Started development of a simulation based acquisition tool.

(U) FY 2000 PLAN:

- (U) Maneuver Imperative: Develop advanced propulsion, survivability, and mobility technologies for future expeditionary combat systems. Complete integration and testing of enhanced minefield multi-spectral sensor, illuminator and processor. Begin design for advanced autonomous Mine Countermeasure systems that can be applied to Marine Corps Ground Combat systems.
- (U) Logistics Imperative: Continued system development of Logistics Information Systems, focusing on decision support tools and data warehousing. Continued corrosion and materials research and testing with insertion of technologies in Light Armored Vehicle/Medium Tactical Vehicle Replacement/Logistics Vehicle System (LAV/MTVR/LVS). Additionally, fuel additives will be created and assessed to decrease fuel consumption, leveraging the related Army initiatives. The effort will jointly develop field fuel analysis and testing equipment to allow Marines to

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identify and capitalize on indigenous fuel sources. To accomplish this, hand held fuel quality sensors are being prototyped.

- (U) Firepower Imperative: Establish common High-Level Architecture (HLA) simulation to sensor performance and development analysis and develop an Integrated Management Plan for Test Experimentation Assessment Modeling and Simulation (TEAMS) capability.
- (U) Command and Control Imperative: Conduct network modeling and simulation effort to support Operations Center needs. Develop wide-band antennae to support Joint Tactical Radio Systems (JTRS) requirements for dismounted combatants. Develop mobile direction finding for High Mobility Multi-purpose Wheeled Vehicle (HMMWV) applications. Provide high accuracy, small, portable geo-location capability via Time Differential of Arrival (TDOA) techniques suitable for transition to the USMC TPCS System. Integrate a collaborative, 3-D, visualization capability for mission planning into the Marine Air Ground Task Force (MAGTF) Software Baseline.
- (U) Training and Education Imperative: Complete Rapid Virtual Data Base development and demo. Continue development of intelligent automated forces and test and operational simulations. Continue training technology concept development. Initiate efforts in training technology. Continue Simulation based acquisition.

(U) FY 2001 PLAN:

- (U) Maneuver Imperative: Test risk reduction technologies for the RST-V platform and payload integration. Complete integration of survivability technology with RST-V and LAV and test. Complete mine detection processing software development and transition to Joint Defense Technology Objective. Continued investigation leading to the technology to enhance mobility of tactical systems. Continue design and begin integration of advanced autonomous Mine Countermeasure systems that can be applied to Marine Corps Ground Combat vehicles, to include variant configurations and mission packages.
- (U) Command and Control Imperative: Human-Computer Interface enhancements for Operation Centers and Command Centers will be demonstrated and analyzed based on field test results. Technologies developed for Commander in Chief (CINC) applications from such efforts as the ELB ACTD will be leveraged via further development for lower

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echelon USMC forces. Continue development of wideband antennae to support JTRS requirements. Continue mobile direction finding for HMMWV applications. Continue integration of 3-D visualization capability into software baseline in support of Operation Center evolution.

- (U) Logistics Imperative: Continue logistics technology efforts in direct support of emerging USMC logistics concepts, systems and requirements. Continue specific technology development and insertion in the areas of Logistics Information Resources and Precision Logistics. Continue rapid prototype and experimentally validated logistics equipment concepts into Marine Corps acquisition programs. Initiate efforts to expand logistics capabilities to accommodate emerging concepts of employment and evolving sea base platforms. This task will investigate unconventional means to exploit fluid movement and delivery capabilities. The effort will investigate materials and techniques that will facilitate the expansion of Combat Service Support operating reach. Self-healing bladder materials will be developed. Continue development of fuel additives and assess fuel consumption, leveraging the related Army initiatives. The effort will jointly develop field fuel analysis and testing equipment to allow Marines to identify and capitalize on indigenous fuel sources. To accomplish this, hand held fuel quality sensors are being prototyped. This task covers all emerging needs for CSS technology development in the areas of maintenance, health services, deliberate engineering and transportation/distribution. The effort will develop platforms, packaging materials, and recommended by MCCDC Studies and Analysis, the Naval Expeditionary Warfare Engineering IPT, the MPF 2010 and Beyond Working Group, and the Naval Doctrine Command's Sea Based Logistics concept development group. Recommended parameters of speed/payload/support concepts for surface, ground, and air CSS platforms will be designed into future systems. Solutions in new packaging materials, innovative distribution platforms, expeditionary power/sanitation/construction, and maintenance support will be applied to specific CSS areas.
- (U) Training and Education Imperative: Continue development of intelligent automated forces and test operational simulations. Continue training technology concepts development. Continue simulation-based acquisition. Continue training technology efforts.

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## B. (U) PROGRAM CHANGE SUMMARY:

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
(U) FY 2000 President's Budget	12,970	10,534	9,867
(U) Appropriated Value		17,534	0
(U) Adjustments President's Budget			
(U) Congressional Plus-ups		7,000	
(U) Various Rate Adjustments	-59	0	-74
(U) Congressional Rescission		-97	
(U) SBIR/STTR Transfer	-144	0	0
(U) Execution Adjustment	-77	0	0
(U) FY 2001 President's Submission	12,690	17,437	9,793

C. (U) OTHER PROGRAM FUNDING SUMMARY: Not applicable.

## D. (U) RELATED RDT&E:

(U) This program adheres to Tri-Service Reliance Agreements in Chemical/Biological Defense; Command, Control and Communications; Conventional Air/Surface Weaponry; Electronic Devices; Ground Vehicles; Ships and Watercraft; Manpower and Personnel; and Training Systems.

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PE 0206313M Marine Corps Air Ground Task Force Command/Control/Comm/Computers & Intel (MAGTF C4I)

PE 0206623M Marine Corps Ground Combat/Supporting Arms Systems

PE 0206624M Marine Corps Combat Services Support

PE 0602232N Communications, Command and Control, Intelligence, Surveillance and Reconnaissance (C3ISR)

PE 0603606A Landmine Warfare and Barrier Advanced Technology

PE 0603611M Marine Corps Assault Amphibious Vehicles

PE 0603612M Marine Corps Mine/Countermeasures Systems

PE 0603619A Landmine Warfare and Barrier - Advanced Development

PE 0603635M Marine Corps Ground Combat/Supporting Arms Systems

PE 0603640M Marine Corps Advanced Technology Demonstrations

PE 0603782N Mine and Expeditionary Warfare Advanced Technology

E. (U) SCHEDULE PROFILE: Not applicable.

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